Infrastructure Challenges in South Asia: The Role of Public-Private Partnerships

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Abstract

The importance of private sector participation and public-private partnerships (PPPs) in promoting infrastructure development in the Asian region has been significant. Though there are several studies which have highlighted the role of PPPs in infrastructure in East and South East Asia, few studies have dealt with the contribution of PPPs to infrastructure in the South Asian region.

This paper examines the existing infrastructure facilities and infrastructure needs of the South Asian region and looks at the role played by PPPs as important tools in enhancing infrastructure development in South Asia. This study points out the constraints to private sector participation in South Asia and looks at the experience of India and a few other countries in the region with respect to PPPs. The role of multilateral banks in promoting infrastructure in South Asia is also highlighted. Further, the study analyzes alternative means of financing infrastructure, such as defense offsets, and suggests policy measures to minimize the constraints to private sector participation in sustaining infrastructure development in the South Asian region.

JEL Classification: L33, H 54, L9

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1. INTRODUCTION

The importance of infrastructure for overall economic development and enhancement of trade and business activity in a country need hardly be emphasized. Infrastructure reflects credibility, confidence, low-cost production, and market competitiveness. South Asia has become one of the fastest growing regions in the world with growth rate of around 7% in last few years. The region, which accounts for around one quarter of the world's population and around 40% of world's poor, needs to continue with this growth momentum in a sustainable manner in order to raise the overall standard of living and reduce poverty. The importance of physical infrastructure for economic growth and poverty reduction has been well documented in the literature (Estache, 2004; Jones, 2004; Asian Development Bank [ADB], 2005[1]). Furthermore, investment in physical and social infrastructure positively affects the poor directly and indirectly in multiple ways. Investment climate surveys repeatedly show that the limited and poor quality of infrastructure facilities act as a major impediment to business growth in South Asia. Against this backdrop, South Asian countries are making concerted efforts to improve infrastructure capacities in their countries. However, the infrastructure construction industry in South Asian economies is characterized by a vicious cycle of inefficiency—facilities remain almost entirely in the public sector and are plagued with problems related to inefficiency and weak governance. This, in turn, yields poor cost recovery and conflicting incentives to provide efficient, expandable, and reliable services.

The role of adequate infrastructure for economic development has been well documented in the literature (Biehl, 1986; World Bank, 1994; Ferreira and Khatami, 1996; Maree, 1996; Arndt, 1999). In the Asia Pacific region, infrastructure projects—roads, ports, power, and public utilities—have traditionally been established, owned, and managed by the state. Generally, the projects are financed through taxes or by borrowing from commercial banks and international financial institutions, such as World Bank and Asian Development Bank (ADB). The role of the private sector has been relatively limited, usually restricted to subcontracting during the construction phase. However, over the last two decades, all this has changed. Demand for infrastructure investment has increased dramatically in response to the rapid industrialization and urbanization that has occurred in most of the region's developing economies (Maree, 1996; Arndt, 1999) and even more so in the fastest growing economies, such as in India. Governments are no longer able to finance infrastructure projects solely or even predominantly from the public purse (Noel and Brzeski, 2005; Grinmsey and Lewis, 2004). All South Asian countries face budgetary constraints due to, among other things, declining terms of trade for primary commodities, the high cost of debt servicing, increasing revenue expenditures, and smaller aid flows. Governments are also under pressure from multilateral agencies to strengthen fiscal discipline as a part of their on-going structural reforms. Therefore, governments have reduced their involvement in the design, construction, and management of infrastructure projects. Governments are looking to the private sector to not only finance but also build and operate infrastructure assets. However, there are some difficult issues relating to institutional set up, financing, regulatory authorities, tariffs, and Public-Private Partnerships (PPPs). In recent times, PPPs have emerged as an undoubtedly vital tool in building, managing, and operating infrastructure services efficiently.

This study is intended to carry out a detailed analysis of the trends in infrastructure availability in South Asia, to look at the demand-supply gap in infrastructure, and to review the issues related to infrastructure financing from both the public and private sector perspectives.

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[1] ADB's Infrastructure Operations: Responding to Client Needs, March 2007, Manila.

Given the increasing importance of private sector participation in infrastructure development, this research provides an increased understanding of whether and under what conditions developing economies in South Asia can benefit from PPPs to fund and finance much needed major infrastructure projects. This study also examines the constraints faced by the private sector in the region and, finally, attempts to provide policy recommendations to South Asian governments on improving the economic environment for PPPs, enhancing competition, productivity, quality, and delivery systems for infrastructure projects in the region.

Furthermore, a study of the possible sources of infrastructure financing in South Asian countries may not only solve infrastructural bottlenecks but may also have an impact on the economic well-being of South Asian countries through increased employment in infrastructure projects and related industries, not to mention the fact that infrastructure development is a critical determinant of economic growth and foreign direct investment (FDI) in the region. Section 2 of the study gives an overview of major economic indicators of South Asia—including infrastructure indicators, points out the trends in private sector investment for infrastructure development in the region, and provides estimates of infrastructure needs of the region. Section 3 presents a comprehensive analysis of the PPPs, their meaning, and the different types of PPPs. Section 4 deals with private sector participation in infrastructure-building in developing economies and Asia, with particular emphasis on South Asia. This section also presents major findings with respect to PPPs in the Asian region. Section 5 outlines the support of multilateral institutions in supporting infrastructure development in the region and also brings out alternative means of financing infrastructure, for instance, through defense offsets. Section 6 presents India's experience with PPPs along with the cases of Sri Lanka and Pakistan. Section 7 presents the conclusion.

2. ECONOMIC TRENDS AND INFRASTRUCTURE NEEDS IN ASIA: AN OVERVIEW

The world economy is expected to grow at a rate of 2.7% per annum in the first decade of the new millennium. As a result, there will be an increase in demand for infrastructure services for both consumption and production purposes—not meeting this increased demand will cause bottlenecks to growth and hamper poverty alleviation efforts.

South Asia has done well in recent years, exhibiting high growth in spite of inherent political instability in Bangladesh, Nepal, and, to a certain extent, Pakistan. Other natural and unforeseen calamities have also greatly affected the region (Table 1). There are several factors that would help to sustain these high growth rates but, as of now, the most important factor is undoubtedly improvement of infrastructure. Despite the liberalization process in many countries of the region, South Asia's regulations for industry, labor, finance, and taxes continue to limit the region's growth and employment potential. According to the ADB[2], electricity, water, road, rail, airports, and port services are poor through out the area. Improvements in every country as well as intra-regional connections would yield substantial benefits by reducing the costs of production and trade (Table 1).

[2] Ibid.

Table 1: Growth Rate of GDP in South Asia: 2002–2008
(in percentage per year)

Country	2002	2003	2004	2005	2006	2007*	2008*
South Asia	3.7	7.8	7.4	8.7	8.7	**7.7**	**8.0**
Bangladesh	4.4	5.3	6.3	6.0	6.7	**6.5**	**7.0**
India	3.8	8.5	7.5	9.0	9.2	**8.0**	**8.3**
Pakistan	3.1	4.7	7.5	8.6	6.6	**6.8**	**6.5**
Sri Lanka	4.0	6.0	5.4	6.0	7.2	**6.1**	**6.0**
Nepal	-0.4	3.0	3.5	2.3	2.3	**2.8**	**2.8**
South-East Asia	4.8	5.3	6.5	5.6	6.0	**5.6**	**5.9**
PRC	9.1	10.0	10.1	10.4	10.7	**10.0**	**9.8**

Source: Asian Development Outlook: 2007
Notes:
1.* Refers to forecasts.
2. South East Asian countries include Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam.
3. PRC = People's Republic of China

Apart from experiencing high growth rates, the region has also built up large foreign exchange reserves of nearly US$250 billion. In addition, gross domestic investment as a percentage of gross domestic product (GDP) has also increased in all the countries of the region. For instance, in 2005, gross domestic savings as a percentage of GDP was nearly 33.8% in India and in Nepal it touched nearly 29%. FDI, another major source of infrastructure development funding, has been increasing, although South Asia fairs poorly in comparison to neighbouring South-East Asia and East Asia, especially the People's Republic of China (PRC). For example, India managed to attract around US$8 billion in FDI in 2005 as compared to the PRC's US$72 billion in the same year. The distinguishing and common characteristic of South Asian countries as compared to their neighbours is its recent, rapid economic growth. Can this growth be increased to 8–10% and sustained? The challenge is daunting. The higher growth, increase in per capita income, and urbanization among other things, will put further demand on more advanced physical and social infrastructure to sustain these trends and also to create productive economic activities. Improvement in infrastructure services remains the key to growth and prosperity in the region.

2.1. Comparison of Infrastructure Facilities in East and South Asia

There is a wide disparity and difference in the level of infrastructure facilities across Asia. There is a marked difference in both the overall level of infrastructure access among countries and differences in the overall characteristics of infrastructure provision reflecting past investment priorities. Tables 2 and 3 provide a summary of comparative indicators of infrastructure across developing regions worldwide and a summary of infrastructure access indicators, respectively.

Table 2: Summary of Comparative Indicators of Infrastructure across Developing Regions

Region	AFR	EAP	ECA	LCR	MNA	SAR
Population (in millions)	674	1823	474	518	300	1378
Percentage living on less than US$1-a-day	46	15	4	10	2	31
Percentage of Urban Population	36	43	65	77	59	28
Major Access Indicators	51	62	70	85	70	42
Electricity (% of population access to network)	24	88	99	89	92	43
Water (% of population access to improved sources)	58	78	91	89	88	84
Sanitation (% of population access to improved sanitation)	36	49	82	74	75	35
Roads (% of rural population living within 2 km of an all-season road)	34	95	77	54	51	65
Teledensity (fixed line and mobile subscribers per 1,000 people)	62	357	438	416	237	61

Source: Jones 2006

Note: AFR: Sub-Saharan Africa; EAP: East Asia and Pacific; ECA: Eastern Europe and Central Asia; LCR: Latin America and Caribbean; Middle East and North Africa; SAR: South Asia.

Table 2 demonstrates the large gap in almost all indicators (except water access) between East Asia and South Asia.

Table 3: Summary of Infrastructure Access Indicators in South and South East Asia, 2005

	Electricity	Water	Sanitation	Teledensity	Road Density (by population)	Road Density (by area)
Afghanistan	5	13	8	12		32
Bangladesh	25	75	48	16	1.6	1594
Cambodia	10	34	16	38	1	70
PRC	97	77	44	424	1.4	189
India	40	86	30	71	3.2	1115
Indonesia	80	78	52	127	1.7	203
Myanmar	5	80	73	8		
Nepal	15	84	27	18	0.6	107
Pakistan	55	90	54	44	1.8	334
Sri Lanka	75	78	91	122		
Viet Nam	60	73	41	88	1.2	287

Source: Jones 2006.

Note: Electricity (% of population access to network), Water (% of population access to improved sources), Sanitation (% of population access to improved sanitation), Teledensity (fixed line and mobile subscribers per 1,000 people), Roads (% of rural population living within 2 km of an all-season road).

According to Table 3, the PRC has near universal access to the electricity network compared with access for only 40% of the population in India. However, India scores significantly higher than the PRC in relation to access to improved water resources. Among the countries, Afghanistan, Cambodia, and Myanmar stand out as particularly lagging in terms of the proportion of the population connected to key national infrastructure networks. Thus, this unequal access to infrastructure facilities and levels of infrastructure development have created a huge gap between the advanced developing countries of Asia and the low-income, least-developed countries of the region.

2.2. Infrastructure Deficit in Asia

In recent years, the infrastructure deficit has become the most glaring deficit that governments around the world have to deal with. The gap between infrastructure needs and the resources governments possess to meet those needs is ever growing. Many developing countries across the globe, and even more so in South Asia, have congested roads, bridges in need of repair, poorly maintained transit systems and recreational facilities, and deteriorated hospitals, schools, and waste treatment facilities all in urgent need of rehabilitation and repair.[3] Governments promise many new projects to close the gap, but often do not or cannot find the funding to follow through on their promises. These problems, in turn, impose large costs on society, from lower productivity to reduced competitiveness to an increased number of road and industrial accidents.

There is no question that this infrastructure deficit is impeding South Asia's growth. More than a third of Indian firms surveyed in the 2004 Investment Climate Assessment cite infrastructure as a "major" or "severe" obstacle to business expansion; in Bangladesh, the figure is 78%. Power is the most critical bottleneck, with transportation a close second. In Bangladesh, firms experience power shortages 250 days a year; in Nepal, there is a power shortage almost every day. As a result, about 40% of firms in India, Pakistan, Bangladesh, Sri Lanka, and Maldives have their own generators. Businesses in Pakistan and India estimate they lose 5–8% in annual sales due to power-related problems.

South Asia is choking with poor quality roads, inefficient ports, and inadequate transport services. India has very few interstate expressways linking its major economic centers and only 3,000 km of four-lane highways. In the last 10 years, the PRC has built 25,000 km of four- to six-lane, access-controlled expressways. The inefficiencies of the Chittagong Port have given Bangladesh all the characteristics of a land-locked country. Indian Railways, the second-largest rail network in the world, is still burdened with congestion, deteriorating quality of its rolling stock, and huge financial losses, though recent financial results have shown improvement.

Fortunately, the growth-related pressures on infrastructure, as well as the exceptionally favorable results from reforms in some sectors such as telecommunications, have created some momentum for further reform and investment in infrastructure in South Asia. Pakistan has successfully privatized the Karachi and Faisalabad Electric Supply Companies. Building on the success of its telecom industry, India has sufficiently reformed its ports and roads to attract about US$8 billion in PPPs in its urban and transport sectors.

However, there has not been greater momentum because infrastructure reforms are deeply political. In India, state government parties that reduce power subsidies to farmers tend to lose elections to parties that promise to restore free power. Attempts to rationalize the Ceylon Electricity Board are resisted by trade unions that see it as the first step in the slippery slope towards privatization and job losses. Plans to contract out water services on a

[3] Deloitte research study, 2006

pilot basis in New Delhi—where, despite plenty of supply (250 liters per capita, per day), water is available only a few hours a day—led to such strong protests that the program was suspended. These episodes are teaching policymakers and donors (some of whom had taken a politically-blind approach to infrastructure reform) that transparency and consultations in reforms are essential, that stakeholders should have confidence that their voices are heard, and that the design of reform options reflects what consumers are looking for. In addition to infrastructure, the high cost of bureaucratic red-tape and regulations—sure signs of poor governance—impedes investment in South Asia. More Indian firms rate these things as greater constraints to growth than infrastructure. In the rankings on "ease of doing business" of all the countries in the world in *Doing Business 2006,*[4] six East Asian countries are in the top 30, but no South Asian country is. India ranks 116th out of 155. It takes about 71 days to start a business in India. Firing a worker in Sri Lanka costs an average of 75 weeks of salary. Fortunately, South Asian countries are taking steps to lower these costs. Pakistan was rated one of the top ten global "reformers" last year. To the extent that investors—especially foreign investors—use changes in the costs of doing business as an indicator of future profitability, South Asia stands to gain immensely by concentrating on reforming these aspects of the business environment.

The strong economic performance of South Asia in recent years has put South Asia on track to achieve the Millennium Development Goal of halving poverty by 2015. Long-term growth in South Asia is forecast to remain around 5.5% through 2015, reflecting a rising contribution to growth from the private sector. However, though the private sector has been contributing increasingly to GDP, this high GDP growth is not sustainable given the infrastructure bottlenecks. Infrastructure bottlenecks make the private sector uncompetitive in the market economies of South Asia in the near future. Since infrastructure is predominantly provided by the public sector in these countries, governments must try to increase budgetary allocation for infrastructure investment or to create an environment that allows for private sector participation. Against the backdrop of all South Asian countries facing budgetary constraints, the second best alternative—i.e., private participation and/or PPPs—is a viable option.

2.3 Infrastructure Needs of Asia

According to ADB-JBIC-WB[5] (2005) study, to meet expected infrastructure service needs, East Asia would have to spend about US$165 billion a year from 2006 through 2010—or roughly around 6.2% of its GDP annually—on electricity, telecommunications, water and sanitation, and major transport networks. These estimates take into account both investment and maintenance of assets. In meeting these needs, it is estimated that 65% of expenditure would need to take the form of new investments with the remaining 35% channeled towards maintenance of existing assets. The PRC alone is expected to account for 80% of infrastructure expenditures in the region.

In addition, investment requirements for South Asia as given in a World Bank/UNESCAP[6] study indicates that developing Asian and Pacific countries need investments annually of US$228 billion from 2006 to 2010, nearly half of it required for the energy sector. In another estimate, the Asia-Pacific Infrastructure Forum found that the region's investment requirements would be approximately US$300 billion per year.[7]

[4] World Bank (2006), Doing Business 2006: Creating Jobs, World Bank Publication, Washington, DC.

[5] ADB-JBIC-World Bank (2005), Connecting East Asia: A New Framework for Infrastructure, ADB, JBIC and World Bank Publication, Manila.

[6] See Chatterton, I. and O. S. Pureto (2005), Estimation of Infrastructure Investment Need in the South Asia Region, World Bank, Washington, D.C.

[7] As quoted in UNESCAP (2005).

Research and Information Systems (RIS) for developing countries has estimated that developing Asian countries will need to spend an estimated total of US$412 billion per year between 2007 and 2012 (or approximately US$2 trillion over a five year period) on infrastructure such as roads, railways, airways, ports, and electricity.[8] For India alone, the study estimates a need for infrastructure investment of US$410 billion during 2007–2012 compared with the estimated US$320 billion during 2007–2011 by the Planning Commission (Tables 4 and 5).[9]

Table 4: Estimates of Annual Infrastructure Investment Needs in Asia, 2007–2011

	ADB-JBIC-WB East Asia (excluding South Asia)[1]	UNESCAP East Asia and South Asia[2]	Infrastructure as a percentage of GDP in India
Infrastructure investment (US$ billion)	165	228	33
Infrastructure investment (% of GDP)	6.2	6.8	4.5

Source: complied from the respective studies.
Notes:
1. Includes East Asia, excluding South and Central Asia, for the period 2006–2010.
2. Includes East Asia and Pacific, and South Asia, for the period 2006–2010.

Table 5: Expected Annual Investment Needs, 2005–2010

	New		Maintenance		Total	
By Income Group	**US$M**	**% GDP**	**US$M**	**% GDP**	**US$M**	**% GDP**
Low Income	49,988	3.18	58619	3.73	108607	6.92
Middle Income	183,151	2.64	173,035	2.50	356,187	5.14
High Income	135,956	0.42	247,970	0.76	383,926	1.18
Developing Countries by Region						
East Asia and Pacific	99,906	3.67	78986	2.90	178892	6.57
South Asia	28,069	3.06	35,033	3.82	63,101	6.87
Europe & Central Asia	39,069	2.76	58, 849	4.16	98,918	6.92
Middle East & N.Africa	14,884	2.37	13, 264	2.11	28.148	4.48
Sub-Saharan Africa	13,628	2.84	12,644	2.71	25,912	5.55
Latin American & Caribbean	37,944	1.62	32,878	1.40	70,822	3.02
All developing countries	233,139	2.74	231,654	2.73	464,793	5.47
World	369,095	0.90	479.624	1.17	848.719	2.07

Source: Fey and Yepes (2006).[10]

3. PUBLIC-PRIVATE PARTNERSHIPS (PPPS)

Given the huge infrastructure investment needs of the region and governments' limited resources, the role of the private sector and PPPs in enhancing infrastructure facilities in the region is vital. Since the 1990s, there has been a rapid rise of PPPs around the world. Governments in developing as well as developed countries are using PPP arrangements for

[8] These broad estimates of infrastructure investment needs are supported by aggregative analysis of investment needs in the region based on regression equations linking GDP growth to infrastructure investment needs.

[9] Planning Commission, Government of India, 2007.

[10] Fay Marainne and Tito Yepes (2003), "Investing in Infrastructure: what is needed from 2000 to 2010," World Bank Policy Research Working Paper 3102, July 2003.

improved delivery of infrastructure services. PPPs are becoming the preferred method for public procurement of infrastructure and infrastructure services projects throughout the world.

3.1. Features of PPPs

Under PPPs, the public and private sectors work together on the implementation of projects, each retaining their own identities and responsibilities. They collaborate on the basis of a clearly defined sharing of tasks and risks to achieve benefits of added value and increased efficiency. PPPs are a procurement tool where the contract payments are usually structured in such a way that the public authority and/or users pay only for services rendered satisfactorily. Project-related risks are largely transferred to the private entity. In a PPP, the focus of the government shifts to policy, strategy, and a monitoring role rather than service delivery. In the long term, the benefits of PPPs are in improved management and use of funds. Accordingly, affordability has to be the cornerstone of the planning process.

3.2. Case for Public-Private Partnerships

PPPs are unlikely to entirely replace traditional infrastructure financing and development any time soon, if ever. PPPs are just one tool among many. Governments typically have a number of objectives when building infrastructure: getting good value for money, timely delivery, meeting public needs, and so on. The procurement model that best addresses these objectives is the one that is chosen based on the circumstances of individual cases/projects—PPPs have shown their potential as an important way to meet the objectives and address infrastructure shortages. For example, PPPs provide new sources of capital for public infrastructure projects. Private equity, pension funds, and other sources of private financing must still be repaid, but shifting the responsibility for arranging the financing to a private partner can help deliver infrastructure if a public entity is unwilling or unable to shoulder the full debt or the associated risk of the project at a particular point in time. Other advantages of PPPs include:

1. **Bringing construction forward**

   Conventional procurements typically require the public sector to provide significant capital upfront, even though the benefits/results of the project may be delayed or uncertain. Most forms of PPPs enable the public sector to spread the public's cost of infrastructure investment over the lifetime of the asset, much as homeowners do when they take out home mortgages. As a result, infrastructure projects can be completed much quicker, allowing users to benefit from the investment much sooner than is typical under pay-as-you-go financing.[11] In many cases, the private contractor also has a strong incentive to complete the project as quickly as possible because it needs the stream of revenues to repay the capital costs.

2. **On-time and on-budget delivery**

   With payments better aligned to the delivery of project objectives, PPPs also have a solid track record of completing construction on time or even ahead of schedule. For example, in 1997, Jawaharlal Nehru Port Trust (JNPT) signed an agreement with P & O (ports and cargo handling), Australia for the development of a two-berth container terminal on a Build Operate and Transfer (BOT) basis for 30 years. P & O completed

[11] For example, the creative financing approach used for the Virginia Pocahontas Parkway PPP project eliminated what might have been a 15-year delay in construction while financing was assembled.

the project ahead of schedule and commenced operations at the new Nhava Sheva International Container Terminal (NSICT) in 1999.[12]

3. Shifting construction and maintenance risk to the private sector

Politics and budget pressures play havoc with the proper maintenance of existing infrastructure. There always seems to be another, higher priority—some program or crisis requires more urgent funding than rehabilitating an aging road or school, a budget deficit may push funding for infrastructure maintenance further down the priority list, or an upcoming election may lead politicians to delay funding for updating a wastewater treatment plant to make way for a more politically appealing program or project. Moreover, the effect of reducing spending on maintenance is rarely immediate; politicians who opt to cut back on such spending will likely have left office long before society begins to complain about crumbling roadbeds or overburdened electricity networks.

Such deferred maintenance imposes huge costs in the long run—for example, early intervention costs about 20 percent less than maintenance postponed to the last quarter of a road's life. Continual deferral of maintenance results in more safety problems over the course of a shorter infrastructure lifespan, reduced quality of services, and generally worse financial outcomes.

Well-designed PPPs can ameliorate these problems by transferring certain construction and maintenance risks to a private partner. Among the risks that may be assumed by the private partner are:

- Design risk of infrastructure projects (e.g., roads, flyovers)
- Meeting required standards of delivery
- Incurring excessive cost overruns during construction
- Completing the facility on time
- Underlying costs to the service delivery operator and the future costs associated with the asset
- Industrial action against or physical damage to the asset
- Certain market risks associated with the project

The ability to shift some or all of these risks to the private sector is an important benefit of PPPs. Payment structures require the assets be available and properly maintained over time. The public sector thereby gains greater confidence in the level of its spending commitments over the lifetime of the asset. Greater cost transparency, in turn, supports more effective planning and helps to avoid cuts in other service areas as a result of unexpected infrastructure costs.

4. Cost and Construction Savings

Cost savings from PPPs typically materialize in several forms: lower construction costs, reduced life-cycle maintenance costs, and lower costs of associated risks.

[12] In Canada, for example, Terminal 3 at the Toronto Pearson Airport was completed 18 months ahead of schedule under a PPP contract. The United Kingdom's National Audit Office reported in 2003 that 73% of non-PFI construction projects were over budget and 70% were delivered late. In contrast, only 22% of the PFI projects came in over budget and only 24% were late.

In traditional contracting, the private sector's role is typically limited to immediate construction. This can create a perverse incentive to economize on elements of construction today even though maintenance costs might be higher in the long run. Shifting long-term operation and maintenance responsibilities to the private sector creates a stronger incentive to ensure long-term construction quality because the firm will be continue to be responsible for maintenance costs years down the road. This creates a strong incentive to do preventive maintenance and reduces the risk of future fluctuations in operations costs. Under this scenario, the public benefits from the construction's life-cycle efficiency.[13]

5. **Strong customer service orientation**

   Private sector infrastructure providers, often relying on user fees from customers for revenue, have a strong incentive to focus on providing superior customer service. Moreover, as the asset is no longer managed by the public sector, the public sector is able to concentrate more on ensuring the provider maintains certain customer service levels. Also, innovation in customer service delivery helps to account for high satisfaction levels.[14]

6. **Enabling the public sector to focus on outcomes and core business**

   When they are properly structured, PPPs enable governments to focus on outcomes instead of inputs. When utilizing PPPs, governments are able to focus leadership attention on the outcome-based public value they are trying to create. While PPPs hold significant benefits as an infrastructure delivery tool, the model is not without its critics. Some of the criticisms are well-grounded and merit careful consideration when evaluating the relative pros and cons of delivery method alternatives. Others, however, are driven by a misunderstanding of PPPs or are based on outdated or incomplete information. PPPs also present formidable challenges, both at earlier and later stages of market development. Addressing these challenges and maximizing the benefits of PPPs require governments to operate in a new way.

3.3. Types of PPPs

PPPs across the world are becoming more and more popular. The past fifteen years have seen development in the modality of private involvement. The main defining feature of PPPs is the degree of private control over and involvement in financing.

However, the important point to note is that there is no unique model of PPP. Each project, given its circumstances, will define what is suitable and what is required. Additionally, each model has a different impact on the poor.

Some of the most common PPP models are:

1. **Design-Build (DB)**
   Under this model, the government contracts with a private partner to design and build a facility in accordance with the requirements set by the government. After completing the facility, the government assumes responsibility for operating and maintaining the facility. This method of procurement is also sometimes referred to as Build-Transfer (BT).

[13] A United Kingdom study of benefits flowing from operating PFI projects found that, on average, the government expects to achieve a savings of 17% over the whole-life cost of services by using the PPP approach, with savings as high as 45% in one of the cases.

[14] In the United States, the owners of the 91 Express Lanes freeway in Southern California hold focus groups to learn more about how to please customers.

2. **Design-Build-Maintain (DBM)**
   This model is similar to DB except that the private sector also maintains the facility. The public sector retains the responsibility for operations.

3. **Design-Build-Operate (DBO)**
   Under this model, the private sector designs and builds a facility. Once the facility is completed, the title for the new facility is transferred to the public sector, while the private sector operates the facility for a specified period. This procurement model is also referred to as Build-Transfer-Operate (BTO).

4. **Design-Build-Operate-Maintain (DBOM)**
   This model combines the responsibilities of design-build procurements with the operations and maintenance of a facility for a specified period by a private sector partner. At the end of that period, the operation of the facility is transferred back to the public sector. This method of procurement is also referred to as Build-Operate-Transfer. (BOT)

5. **Build-Own-Operate-Transfer (BOOT)**
   The government grants a franchise to a private partner to finance, design, build, and operate a facility for a specific period of time. Ownership of the facility is transferred back to the public sector at the end of that period.

6. **Build-Own-Operate (BOO)**
   The government grants the right to finance, design, build, operate, and maintain a project to a private entity, which retains ownership of the project. The private entity is not required to transfer the facility back to the government.

7. **Design-Build-Finance-Operate/Maintain (DBFO, DBFM, or DBFO/M)**
   Under this model, the private sector designs, builds, finances, operates, and/or maintains a new facility under a long-term lease. At the end of the lease term, the facility is transferred to the public sector. In some countries, DBFO/M covers both BOO and BOOT.

PPPs can also be used for existing services and facilities in addition to new ones. Some of these models are:

1. **Service contract**
   The government contracts with a private entity to provide services the government previously performed.

2. **Management contract**
   A management contract differs from a service contract in that the private entity is responsible for all aspects of operations and maintenance of the facility under contract.

3. **Lease**
   The government grants a private entity a leasehold interest in an asset. The private partner operates and maintains the asset in accordance with the terms of the lease.

4. **Concession**
   The government grants a private entity exclusive rights to provide, operate, and maintain an asset over a long period of time in accordance with performance requirements set forth by the government. The public sector retains ownership of the

original asset, while the private operator retains ownership over any improvements made during the concession period.

5. **Divestiture (either complete or partial)**
   The government transfers an asset, either in part or in full, to the private sector. Generally the government will include certain conditions with the sale of the asset to ensure that improvements are made and citizens continue to be served.

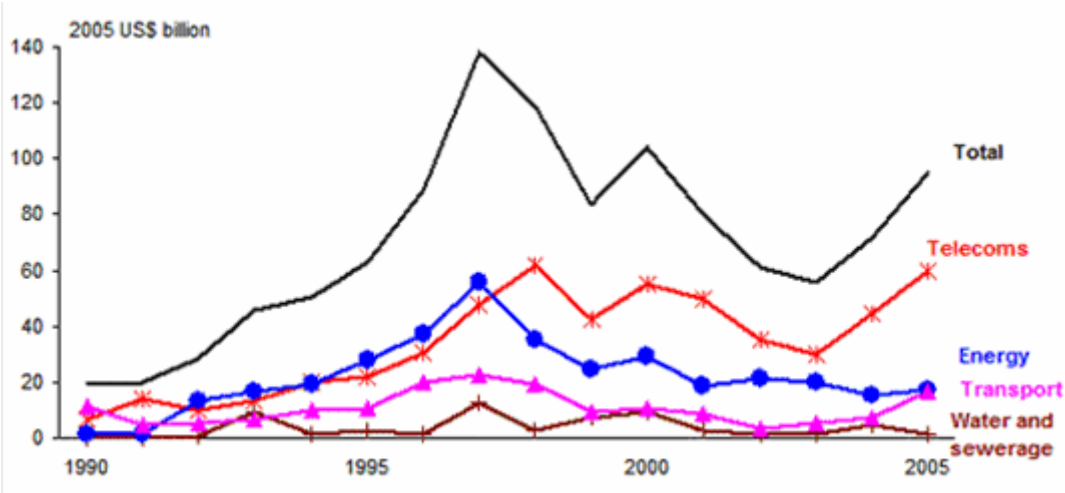
There is no unique model when it comes to private sector's involvement in infrastructure. Each project, given its circumstances, will define what is suitable and what is required. Each model has a different impact on the poor. However, Greenfield project type PPPs are very popular as they help to create employment and it is easier to set up a new plant and get approvals rather than expand operations or re-build something on an existing structure or company.

4. INFRASTRUCTURE AND PRIVATE PARTICIPATION IN ASIA AND DEVELOPING ECONOMIES

Traditionally, infrastructure investment in Asia and across the world has been funded largely by the public sector and various multilateral agencies including World Bank, Asian Development Bank (ADB) and organizations like JBIC. Fiscal space and lack of resources has limited governments' capacity to finance large scale infrastructure projects. Recently, however, the private sector has entered the picture to support government in addition to its own business needs to help finance and build large-scale infrastructure projects in Asia and the developing world. The private sector participated with zeal in the early Nineties in infrastructure development and finance. However, private participation in infrastructure projects in developing countries plummeted after the 1997 Asian crisis and followed a broadly declining trend for several years afterward. However, in 2004 and 2005 investment in such projects increased sharply. In the meantime, the distribution of investment across sectors and regions and the allocation of risks between public and private parties shifted. Private sponsors started putting more emphasis on risk mitigation strategies. To take advantage of private sponsors' renewed interest in infrastructure projects, governments need to create risk-sharing arrangements that attract private operators while also benefiting governments, taxpayers, and users (Kerf and Izagurre, 2007).

Furthermore, total investment commitments to private infrastructure projects in developing countries grew by 70% in 2004–2005, to reach US$95 billion. As a share of developing country GDP, investment increased from 0.7% in 2003 to 1% in 2005. In nominal terms, investment levels in 2005 were close to their 1997 peak. Yet in real terms they were still about 30% lower (Figure 1), and as a share of GDP they were almost 50% below the peak. But it was the first time since 1997 that investment rose two years in a row and, by any measure, that growth was substantial.

Figure 1: Investment Commitments to Infrastructure Projects with Private Participation in Developing Countries by Sector, 1990–2005



Sources: World Bank and PPIAF, PPI Project database.

The growth was driven mainly by one sector: telecommunications. Indeed, that sector has dominated investment since 1998, and its share in 2001–2005 was substantially larger than in the 1990s. In 2005, telecommunications claimed 63% of the total growth; at US$60 billion, investment in the sector was just 3% below its 1998 peak. With telecommunications excluded, investment still rose in both 2004 and 2005, though more modestly—at US$35 billion in 2005, investment in the other sectors was a full 60% below its peak. Overall, Figure 1 also shows that investments in infrastructure projects with private participation in developing countries reached its peak in 1997 and suddenly plummeted thereafter due to the East Asian crisis. It is only in 2000 that investments picked up again though the peak of 1997 has not been reached again.

Regions ranked by investment, 1990–2005

Unlike across industry sectors, the distribution of investment across developing regions became increasingly balanced. From 1990–2000, Latin America by far had the largest share of investment, with almost 50% of the global total. East Asia followed with 27%. Each of the other regions accounted for only a small share. By contrast, in 2001–2005, investment was much more equally distributed. Latin America remained in the lead, but with only a 31% share. Eastern Europe and Central Asia followed with 27%, East Asia with 18%, and the South Asia region had a share of 7.3%. Further, energy continued to be the top sector for private participation in infrastructure with 1,307 projects from 1990–2005 followed by transport (829), telecommunications (749), and water and sewerage (383) (Tables 6 and 7). The data by top 10 countries on private projects shows that the PRC had 483 projects, dominating East Asia, followed by Brazil (297) in Latin America and India having the maximum number of projects in South Asia (172) (Table 8).

Table 6: Project Investment Ranked by Region, 1990–2005 (in US$ million)

Region	Project Investment
Latin America and the Caribbean	407,202
East Asia and Pacific	224,194
Europe and Central Asia	182,449
South Asia	70,435
Middle East and North Africa	41,163
Sub-Saharan Africa	36,510

Source: Public-Private Infrastructure Advisory Facility (PPIAF), World Bank.

Table 7: Primary Sectors Ranked by Number of Projects in the World, 1990–2005

Sector	Project Count
Energy	1,307
Transport	829
Telecommunications	749
Water and sewerage	383

Source: PPIAF, World Bank.

Table 8: Top 10 Countries by Projects, 1990–2005

Country	Project Count
PRC	483
Brazil	297
Russian Federation	284
Argentina	182
India	172
Mexico	151
Chile	103
Colombia	90
Malaysia	87
Thailand	84

Source: PPIAF, World Bank.

Recent private activity has also become somewhat less concentrated by country. In 2001–2005 the top 10 countries by investment accounted for 59% of the total, down from 70% in 1990–2000. Even so, private activity remained highly concentrated: of the 110 countries with private activity in 2001–2005, 20 countries attracted 80% of the total investment. Table 9 shows the top 10 countries by projects from 1990.

Table 9: Top 10 Countries by Investment, 1990–2005 (in US$ million)

Country	Project Investment
Brazil	169,363
Argentina	72,833
PRC	72,468
Mexico	70,205
India	51,432
Malaysia	47,516
Philippines	36,199
Indonesia	32,624
Russian Federation	32,056
Turkey	30,270

Source: PPIAF, World Bank.

It is evident from Tables 6, 7, and 8 that private sector infrastructure investments have been concentrated in Latin America and East and South East Asia. Therefore, the following section attempts to not only highlight the role of the private sector in infrastructure investment in South Asia but also to underscore the constraints to private participation in infrastructure construction in the South Asian region.

4.1. Infrastructure with Private Participation in South Asia

Today, the private sector is the engine of growth for many countries and expansion of the private sector has become a central theme in the development agenda of many of those countries. Sustained economic growth is critical for job creation and poverty reduction. In addition, a thriving, private-sector led economy is probably the best defense against corruption, as economies with broad private sector participation, active competition, and clear rules have less scope for corruption. The private sector also has much to contribute to other government goals, by way of tax revenues, reaching out to local communities, setting international standards, and working with governments to extend infrastructure access.

South Asia has relatively low levels of private participation in infrastructure. From 1990–2005, the region's 255 projects attracted about US$67 billion in investment commitments, far short of commitments made in leading regions of East Asia (Table 10). The sector attracting the largest share of investment has been telecommunications (54), and Greenfield projects have constituted the most common form of PPPs, not only in terms of investment but also by type of projects. Projects cancelled comprised of 5 percent of total investment in the region. In most countries of South Asia, the largest investment by private sector has been in the telecommunications sector—nearly US$17612.5 million in 2001–2005, followed by energy, transport, and water and sanitation. India has received the maximum investment in the region followed by Bangladesh and Pakistan (Table 11).

Table 10: Infrastructure in South Asia

Featured Indicator, 1990–2005	Value
Infrastructure Sectors Reported	Energy, Telecommunications, Transport, Water and sewerage
Number of countries with private participation	7
Number of projects reaching financial closure	255
Sector with largest investment share	Telecommunications (54%)
Type of PPI with largest share in investment	Greenfield projects (83%)
Type of PPI with largest share in projects	Greenfield projects (80%)
Projects cancelled or under distress	5 representing 5% of total investment

Source: PPI database, World Bank

Table 11: Investment in Infrastructure Projects with Private Participation: South Asia (in US$ million)

	Telecommunications		Energy		Transport		Water and Sanitation	
	1995–99	2000–04	1995–99	2000–04	1995–99	2000–04	1995–99	2000–04
Bangladesh	438.1	651.3	554.9	501.5	–	–	–	–
India	7456.8	14321.9	7165.6	7559.8	1272.8	1854.3	–	223.2
Nepal	–	20.0	98.2	39.0	–	–	–	–
Pakistan	75.5	1877.7	4298.3	–	421.3	47.0	–	–
Sri Lanka	601.9	524.3	176.3	132.0	240.0	–	–	–
South Asia	8604.5	17612.5	12293.3	8232.3	1934.1	1901.3	–	223.2
East Asia and Pacific	29304.5	17612.5	43589.9	19697.0	24636.4	11293.5	8987.9	2852.7
PRC	5970.0	23042.7	16916.2	5359.1	10802.8	5201.1	719.8	2332.8

Source: World Development Indicators, 2006 (pp. 266–67).

Furthermore, a close look at private projects by primary sector in South Asia show that energy has been the dominant sector with a total of 116 projects in 1990–2005, followed by transport, which has had about 78 projects, with telecommunications occupying the third position with 59 projects. The total investment in the energy sector during this period amounted to US$26.198 million—US$6.075 million in transport and US$38.159 million in telecommunications. Though the number of projects in transport is more than in the telecommunications sector, the investment is greater in the telecommunications sector as compared to transport sector (Tables 12 and 13).

Table 12: Number of Projects by Primary Sector in South Asia

Financial Closure Year	Energy	Telecommunications	Transport	Water and Sewerage	Total
1990	0	3	1	0	4
1991	1	1	0	0	2
1992	4	0	0	0	4
1993	3	3	0	0	6
1994	4	6	1	0	11
1995	20	11	4	0	35
1996	16	10	4	0	30
1997	6	5	6	0	17
1998	9	2	9	0	20
1999	11	0	14	0	25
2000	12	1	0	1	14
2001	5	8	3	1	17
2002	3	2	6	0	11
2003	5	1	15	0	21
2004	11	3	7	0	21
2005	6	3	8	0	17
Grand Total	116	59	78	2	255

Source: PPIAF, World Bank.

Table 13: Investment in Projects by Primary Sector in South Asia (in US$ million)

Investment Year	Energy	Telecommunications	Transport	Water and Sewerage	Total Investment
1990	0	130	2	0	132
1991	614	26	0	0	640
1992	20	20	0	0	40
1993	1,051	62	0	0	1,112
1994	2,075	601	125	0	2,800
1995	2,809	733	303	0	3,845
1996	4,079	1,552	108	0	5,739
1997	1,469	4,200	523	0	6,192
1998	1,291	743	296	0	2,330
1999	2,593	1,301	707	0	4,601
2000	2,414	1,007	100	0	3,521
2001	960	3,565	211	2	4,739
2002	380	5,043	558	0	5,981
2003	825	2,572	535	0	3,932
2004	4,235	5,821	1,134	0	11,190
2005	1,384	10,784	1,473	0	13,641
Grand Total	26,198	38,159	6,075	2	70,435

Source: PPIAF, World Bank.

Table 14: Total Projects by Primary Sector and Sub-sector, South Asia (in US$ million)

Primary Sector	Sub sector	Project Count	Total Investment
Energy	Electricity	111	25,518
	Natural Gas	5	680
	Total Energy	116	26,198
Telecommunications	Telecommunications	59	38,159
	Total Telecommunications	59	38,159
Transport	Airports	5	848
	Railroads	2	198
	Roads	52	2,434
	Seaports	19	2,595
	Total Transport	78	6,075
Water and Sewerage	Treatment plant	1	2
	Utility	1	0
	Total Water and sewerage	2	2
	Grand Total	255	70,435

Source: PPIAF, World Bank.

Table 14 shows that in the Energy sector most of the participation is in Electricity and Natural Gas, and in Transport, it is in airports, railroads, roads, and sea ports. However, in terms of investment, the telecommunications sector has received the maximum investment.

It is important to know not only the sectors where private participation has taken place in the infrastructure construction but also the type of PPP that has been used in the majority of projects (Table 15).

Table 15: Number of Projects by Type in South Asia

Financial Closure Year	Concession	Divestiture	Greenfield	Management and Lease Contract	Total
1990	1	0	3	0	4
1991	0	0	2	0	2
1992	0	1	3	0	4
1993	0	1	5	0	6
1994	0	2	9	0	11
1995	1	1	33	0	35
1996	2	2	26	0	30
1997	3	1	13	0	17
1998	4	1	14	1	20
1999	3	3	19	0	25
2000	0	0	13	1	14
2001	2	0	14	1	17
2002	0	3	8	0	11
2003	5	1	15	0	21
2004	3	2	15	1	21
2005	2	1	12	2	17
Grand Total	26	19	204	6	255

Source: PPIAF, World Bank.
Note: Most infrastructure projects with private participation fit into one of four categories (Concession; Divestiture; Greenfield; Management and Lease Contract). But the boundaries between these categories are not always clear, and some projects have features of more than one category. In those cases, projects have been classified in the category that better reflects the risk borne by the private sector.

Among the total 255 infrastructure projects with private participation in South Asia, the majority of projects have been Greenfield projects.[15] This is attributable to the simplicity and speed of implementation of the Greenfield projects. Given the large number of Greenfield projects, the total investment in Greenfield PPPs is also the largest and stands at US$58,250 million (Tables 16 and 17).

[15] A Greenfield project lacks any constraints imposed by prior work. Examples of Greenfield projects are new factories, power plants, and airports which are built from scratch on Greenfield land.

Table 16: Investment in Projects by Type in South Asia (in US$ million)

Investment Year	Concession	Divestiture	Greenfield	Management and Lease Contract	Total Investment
1990	2	0	130	0	132
1991	0	0	640	0	640
1992	0	0	40	0	40
1993	0	3	1,109	0	1,112
1994	0	543	2,257	0	2,800
1995	135	52	3,658	0	3,845
1996	11	291	5,437	0	5,739
1997	140	1,177	4,875	0	6,192
1998	70	144	2,117	0	2,330
1999	318	468	3,815	0	4,601
2000	0	98	3,424	0	3,521
2001	211	0	4,527	0	4,739
2002	0	966	5,015	0	5,981
2003	237	319	3,376	0	3,932
2004	567	2,531	8,092	0	11,190
2005	227	3,676	9,738	0	13,641
Grand Total	1,917	10,268	58,250	0	70,435

Source: PPIAF, World Bank.

Note: Most infrastructure projects with private participation fit in one of these four categories (Concession; Divestiture; Greenfield; Management and Lease Contract). But the boundaries between these categories are not always clear, and some projects have features of more than one category. In these cases projects have been classified in the category that better reflects the risk borne by the private sector.

Table 17: Total Projects by Primary Sector and Type in South Asia (in US$ million)

Primary Sector	Type of PPI	Project Count	Total Investment
Energy	Divestiture	15	3,700
	Greenfield project	101	22,498
	Total Energy	116	26,198
Telecommunications	Divestiture	4	6,568
	Greenfield project	55	31,591
	Total Telecommunications	59	38,159
Transport	Concession	26	1,917
	Greenfield project	47	4,159
	Management and lease contract	5	0
	Total Transport	78	6,075
Water and sewerage	Greenfield project	1	2
	Management and Lease Contract	1	0
	Total Water and Sewerage	2	2
	Grand Total	255	70,435

Source: PPIAF, World Bank.

As PPPs are in a relatively nascent stage and a fairly recent phenomenon in the South Asian region and given the complexity of implementing a public-private participation in any

infrastructure project, there have been a few instances of private sector participation in infrastructure which have been cancelled or distressed. In South Asia since 1995 to 2005 there have been only five projects which were distressed to the tune of US$3,266 million. See table 18 below.

Table 18: Total Projects Cancelled or Distressed by Primary Sector and Type in South Asia (in US$ million)

Primary Sector	Type of PPI	Project Count	Total Investment
Energy	Divestiture	1	29
	Greenfield project	2	2,800
	Total Energy	3	2,829
Telecommunications		2	437
	Total Telecommunications	2	437
	Grand Total	5	3,266

Source: PPIAF, World Bank.

4.2. Major findings with respect to PPPs in South, East and South East Asia

Private sector investment in infrastructure also showed a wide variation across countries and sub-regions, largely reflecting differences in policy development, institutional environments, income levels, and approaches of governments. South East Asia started attracting significant private investment in infrastructure early and captured the lion's share of it (about US$136.6 billion), accounting for almost half the region's total between 1984 and 2005. East Asia and South Asia were the next two sub-regions to attract significant private sector investment, each accounting for about a quarter of total investment. Private sector investment in infrastructure flowing to central Asia and the Pacific was low or negligible. Private sector investment in infrastructure is highly concentrated in some countries. The top six countries—the PRC (25.3%), India (17.0%), Malaysia (15.5%), Philippines (10.9%), Thailand (10.5%), and Indonesia (8.8%)—account for almost 90% of the total during 1984–2005. Country level time-series data indicate that private sector investment in infrastructure has not recovered to pre-crisis levels in several South East Asian economies including Indonesia, Malaysia, the Philippines, and Thailand. In contrast, private sector investment in investment in the PRC and India was generally unaffected by the East Asian Crisis. In fact, much of the private sector investment in infrastructure in India took place after the crisis and has increased in recent years. Lack of private sector investment in infrastructure reflects the lag in reform in India compared to East Asia and South East Asia and confirms that private sector investment has come back.

Energy (39.6%), telecommunications (35.9%), and transport (18.8%) accounted for most of the private sector investment in infrastructure in the South Asia region during 1984–2005, with very little going to water and sewerage. The levels of investment largely reflect basic sector characteristics (e.g., technology, competition, cost recovery, and legal and regulatory requirements) or the level of sector reforms that (1) affect private sector participation; and, (2) suggest lower scope for private sector investments in water supply, sanitation, and waste management than in the other sectors. Greenfield projects accounted for more than two-thirds of the total, attracting most of the private sector investment in infrastructure in the region and comprised the greatest number of investments in all sub-regions except central Asia. Divestiture was the next largest form of investment in the region, including Central Asia, East Asia, and South Asia. The flow of private sector investment under concession arrangements in the region has been small except in South East Asia and the Pacific.

Management and lease contracts accounted for a negligible part of such fund flows (ADB, 2007).[16]

India's development is also severely constrained by weak infrastructure. Five years ago India invested US$18 billion in its power and transport infrastructure, about 6% of GDP. The PRC invested US$128 billion the same year, or about 20% of GDP. Highways, which move about 70% of goods in India, account for only 2% of the country's 3.32 million kilometers of road. It takes an average of 85 hours to unload and reload a ship at India's major ports, 10 times longer than in Hong Kong, China or Singapore, according to government figures. The Indian government estimates that US$320 billion needs to be invested in its infrastructure if current economic growth is to be sustained.

The challenge facing infrastructure in South Asia is securing funding at competitive rates. For example, of the US$4.3 billion capital investment required to upgrade India's railway network, just one quarter will come from government. The remainder has to come from the private sector. One of the easier ways to boost infrastructure development and spending is to simplify India's burdensome regulatory environment. Despite economic reforms in the 1990s, India has some of the of the world's most restrictive labor laws, which serve to discourage corporate growth and new employment. For example, companies with more than 100 employees require government permission to dismiss workers. The easy movement of human capital both around the country and within industry sectors to meet demand is critical if India is to capitalize on its young, educated workforce and expand the economy.

5. ROLE OF MULTILATERAL INSTITUTIONS IN SUPPORTING INFRASTRUCTURE DEVELOPMENT IN THE REGION AND ALTERNATE FORMS OF FINANCING INFRASTRUCTURE

The role of multilateral institutions in financing and supporting infrastructure activities in the developing world is extremely important. The contribution of multilateral agencies like World Bank, ADB, African Development Bank, Inter-American Development Bank, and the European Bank for Reconstruction and Development in infrastructure development and its subsequent enhancement of economic growth and alleviating poverty is significant. However, given the growing demand for infrastructure in Asia—more specifically in South Asia—multilateral agencies are expected to play an even greater role in bridging the infrastructure deficit and sustaining economic growth in the region.

5.1. World Bank's Role in Infrastructure Development in South Asia

The World Bank has funded numerous projects to develop infrastructure around the world. Recognizing that it must play a key role in meeting global needs for infrastructure-related financing and policy advice, the World Bank has placed infrastructure at the front and center of its development agenda to reduce poverty and stimulate economic growth. The World Bank has developed an Infrastructure Action Plan, which encompasses innovative ways to finance infrastructure projects.

In the 1990s, the World Bank reduced investment lending for infrastructure with the expectation that private sector investment in infrastructure would rise. However, the anticipated rise in private lending never came. Private financing for infrastructure plummeted from US$128 billion in 1997 to US$58 billion in 2002, quite contrary to the expected increase. Bank investment lending for infrastructure dropped from US$9.5 billion in 1993 to US$5.5 billion in 2002. However, since then, the World Bank has stepped up its infrastructure

[16] Sharen Diwesh, Bindu N. Lohani, Mashiro Kawai, and Rajat Nag, "ADB's infrastructure operations-responding to client needs," ADB publication, Manila, 2007.

financing projects and is now fully re-engaged in infrastructure development to help fill this vacuum and to address the high demand for infrastructure services.

As mentioned earlier, in the 1990s, the World Bank's overall lending volume was halved (from US$29 billion to US$15 billion) primarily because of the steep decline in its infrastructure lending. In part, this was due to some disastrous environmental and social consequences of dam construction and other large infrastructure, while the failure of privatization in Latin America contributed to the toppling of governments. As a result, the World Bank became a debt collection agency—collecting US$5.2 billion more than it extended in loans. Beginning in 2003, the institution began infrastructure lending on a major scale; soon this type of lending will represent 40% of the institution's total business.

In South Asia, the World Bank has played a major role in funding infrastructure in the region. The World Bank approved nearly US$3.8 billion for South Asia in 2006. Out of this, US$3 billion was for India alone. US$1.2 billion in loans from International Bank for Reconstruction and Development (IBRD) and US$2.6 billion in International Development Agency (IDA) commitments, of which US$275 were grants. This assistance from the World Bank seeks to address the regions vast urban and rural infrastructure deficit and weakness in the investment climate, including corruption and red tape.

As the World Bank continues its efforts in infrastructure service delivery, it will also endeavor to ensure that high quality in infrastructure projects is maintained and continually draw on lessons learned from the past to keep improving performance. An integral part of this effort will be to improve the measurement of results and infrastructure impact—especially the impact on the poor. The World Bank's infrastructure business, in partnership with other multilateral and bilateral organizations, is committed to developing a "results measurement" agenda, to ensure accurate and transparent measures of performance, to increase accountability, and to improve the quality and sustainability of development impact.

5.2. Asian Development Bank

ADB offers a variety of direct assistance to the private sector. Specifically, ADB's role is to assist private enterprises to undertake financially viable projects with significant economic and social merit and thereby achieve positive development impact. Through its involvement in these projects, ADB helps to facilitate more private projects, thus promoting the efficient use of resources, accelerating economic development, reducing poverty, and raising standards of business.

In addition, ADB assists the private sector by mobilizing capital. The demand for private capital has increased considerably in the region, influenced by the financing needs of large infrastructure development programs as well as the capitalization needs of financial institutions. While official development aid continues to be an important element in the development strategies of ADB and its developing member countries (DMCs), the aid is inadequate to meet the DMCs' growing capital requirements. Attracting private capital has become a strategic objective of many DMC governments and ADB is in a unique position to assist in mobilizing international private capital for its DMCs. ADB has considerable regional experience accumulated over decades and, through policy dialogue with member governments, has assisted in formulating policies designed to encourage private initiatives.

Furthermore, direct participation of ADB in private sector activities acts as an additional attraction to long-term, private investors. Hence, the presence of a multilateral bank investing alongside private partners helps to provide a sense of security to the private investors. Innovative financial solutions involving a mixture of private and official funding sources may be needed to entice commercial lenders and equity investors to manage the risks associated with investing in developing countries.

ADB directly supports private enterprises, private equity funds, and financial institutions. Its traditional modes of financing are equity investments and hard currency loans. Equity may include preferred stocks, convertible loans, and other forms of mezzanine financing. ADB has three credit enhancement products to facilitate such co-financing: Complementary Financing Scheme, Partial Credit Guarantee, and Political Risk Guarantee.

ADB private sector operations focus primarily in two sectors: finance and infrastructure. The financial sector, or capital markets projects, assists private financial intermediaries in diverse sectors including banking, leasing, venture capital financing, merchant banking, micro-credit, small and medium enterprises (SMEs), private equity funds, mutual funds, insurance, securitization, credit enhancement, and credit rating. Infrastructure includes telecommunications, power and energy, water supply and sanitation, ports, airports, and toll roads. The projects may involve various forms of risk-sharing and ownership arrangements including BOO and BOT structures. Some examples where ADB participated include the BOO venture for Fauji Oil Terminal in Port Qasim and the North Luzon Expressway Rehabilitation and Expansion Project in the Philippines.[17]

ADB assists in analyzing feasibility studies and developing the structure of infrastructure projects and provides financial support to qualified projects through equity investments, loans, and credit enhancement products, including guarantees. ADB is an active member of the Public-Private Infrastructure Advisory Facility (PPIAF), a multi-donor facility, and also provides assistance to governments to promote private sector involvement in infrastructure building to help eliminate poverty and achieve sustainable development.

When appraising projects, ADB pays particular attention to the process of selecting the developers and suppliers as well as to a project's environmental and social benefits, particularly poverty reduction. A fair and transparent competitive bidding process is typically the best way to ensure that the terms of the project are reasonable for all the stakeholders. To be eligible for ADB assistance, the proposed investment should be in the private sector of a DMC and owned by private sector entities, which may be local or foreign. An enterprise owned jointly by private and government interests may be eligible for ADB assistance, provided the majority of its equity is privately owned and the project is controlled by private investors.

ADB's total financial support for a project, including loan, equity investment, partial credit guarantee, and underwriting commitment, is limited by policy to 25% of the total cost of the project or US$50 million, whichever is lower. ADB also provides political risk guarantee coverage without the host government's counter-guarantee, of up to 50% of the total project cost or US$100 million, whichever is less. ADB participation is intended to catalyze financing from local and/or foreign sources, not to compete with these sources. ADB's policy is to limit equity investments to less than 25% of the total share capital. Also, ADB cannot be the largest single investor in an enterprise. If needed, ADB may assist in mobilizing additional debt from commercial banks and other financial institutions. This may be through parallel financing separate from the ADB package, or through co-financing, in which ADB acts as lender of record.

Ultimately, ADB's role in financing infrastructure projects is primarily to catalyze and mobilize resources into private sector projects which deliver development impact, and to "add value" to private sector projects to sustain development impact. Table 19 depicts infrastructure lending by ADB in the Asian region.

[17] More examples of ADB projects are illustrated in the ADB booklet entitled, "Private Sector Operations," available on the ADB Website.

Table 19: Infrastructure lending by ADB

	Public Sector (in US$ billion)				Private sector (in US$ million)		
	1970s	1980s	1990s	2000–06	1980s	1990s	2000–06
Lending	3.6	11.4	26.6	20.7	35.1	497.4	1283.6
Share in total lending (in percentage)	54	53	50	53	10.8	37.6	52.1

Source: R. Nangia (2007).

It is evident that ADB lending to infrastructure both in the private and public sector has been instrumental in developing infrastructure in the Asian region. However, given the huge infrastructure needs of the Asian region, especially the South, several novel, alternate means of financing infrastructure, such as defense offsets, have been highlighted in the literature in recent years.

5.3. Defense Offsets (An Alternate Means of Financing Infrastructure)

The importance of offsets in the global defense trade has been growing over the last two decades. Today most developed and developing nations have some sort of offset programme, frequently either to protect their own defense industries, or to assist in the further development and enhancement of burgeoning indigenous defense industrial capabilities. In the modern defense business industry, offset has become an essential part of any proposed defense equipment package, with many nations increasingly paying greater attention to the offset proposals contained within the supplier's proposal packages.

Frequently, offset packages are the determining factor in the decision-taking process as far as to whom contracts are awarded. It is known that, in some countries, it is the details of the offset packages put forward by competing contractors which is looked at and assessed first, even before other parts of the tender are examined.

The US Department of Commerce, Fifth Annual Report on Offsets in Defense Trade (2001) states that, "Some governments readily admit that they are no longer concerned with the price or quality of the defense system purchased, but rather with the scope of the offset package offered. Recently, the Czech Republic announced that in competition for its jet fighter procurement, offsets would be the deciding factor as opposed to technical and performance criteria and price."

Offsets in defense trade can be both direct and indirect. Some of the examples of direct and indirect offsets are as follows:

- **Direct**
  Technology transfer, co-production, local installation, local assembly (components; platforms), parts manufacture, creation of authorized regional service centers, purchase of defense components from the customer country.

- **Indirect**
  Industrial projects, employment creation, skills transfer, student sponsorships, building of schools and colleges, infrastructure development, investment promotion, export development, management skills (IT; packaging; quality standards; marketing).

The importance of offsets for developing economies, like India's, is immense. Currently, more than 120 developed and developing countries have some sort of economic offset for purchase of aircraft's and defense technology. Offsets account for between 10–15% of world trade and now applies to major civil programs such as commercial aircraft,

telecommunications, and power generation. It is a buyer's market and India, with its huge import of defense-related equipment and capital goods, must leverage from its defense deals. However, in comparison to its other developing counterparts like Brazil and the Philippines, India has not leveraged much from its offset arrangements and, in fact, does not appear to have a formal offset policy in place. Though in the past India has struck a few offset deals involving technology transfer to build the domestic defense industry, counter trade, and long term credit arrangements, it certainly has not capitalized on its defense deals as much as it could or should have. A long term offset policy will go a long way in meeting the country's investment needs, especially in sectors like infrastructure.

According to the India Infrastructure Report (2006),[18] currently 5.5% of GDP is invested in the infrastructure sector. This needs to be increased to 8% in the fiscal year 2007–2008, by which time the annual level of investment in infrastructural facilities is projected to treble or more, from the current level of US$60 billion, to US$130 billion by the end 2007. And given the infrastructure requirements of nearly US$150 billion over the next 5 years and an increase in India's capital goods imports in the coming years, having an offset policy and leveraging big deals in the defense sector is an important policy option which the country must optimize.

In the literature, a new word to describe offsets is "Economic Enhancement" (EE). The ultimate objective of EE is to leverage a government's buying power to provide the maximum benefit to a country's economy. Some of the major benefits of an offset policy include:

1. Aid in economic diversification and realizing goals set within the national economic development plan.
2. Reduce the cost of major government procurements to the economy.
3. Provide diversification of the economic base.
4. Encourage FDI.
5. Import substitution.
6. Create export markets for goods produced locally.
7. New employment opportunities for local nationals.
8. Technology transfer.

As mentioned earlier, nearly 130 countries have an offset policy in place. The use of offsets in non-defense-related areas is on the rise. It is believed that India's requirement of defense goods is assessed to be around Rs. 200 billion yearly. Of this, imports alone constitute Rs. 100 billion a year. Thus, India being a major arms importer, offsets could be a good route to procure much needed infrastructure investment and reap other benefits of technology transfer, employment generation, and, above all, make the Indian defense sector internationally competitive and self-reliant.

6. THE INDIAN EXPERIENCE WITH PPPS: GOVERNMENT INITIATIVES

Key government initiatives.[19] The Indian Department of Economic Affairs (DEA) has highlighted that the Government of India (GOI) is committed to raising the investment in infrastructure from its existing level of 4.7% of GDP to around 8%. Infrastructure shortages are proving a key constraint in sustaining and expanding India's economic growth and making it more inclusive for the poor. The government is actively promoting PPPs in the key infrastructure sectors of transport (including railways), power, urban infrastructure, and tourism. PPPs are seen as an important tool for producing an accelerated and larger pipeline

[18] India Infrastructure Report (2006), 3I network, Oxford University Press, New Delhi, India.

[19] The section on initiatives by the Government of India is largely taken from the ADB's regional workshop on PPP's held in December 2006 in India for the Chief Secretaries of Indian states.

of infrastructure investments, and reducing the country's infrastructure deficit. A PPP department has been established in the DEA to administer various proposals and coordinate activities to promote PPPs.

Viability Gap Funding (VGF) scheme. The GOI has established the VGF scheme as a special facility to support the financial viability of those infrastructure projects which are economically justifiable but not commercially viable in the immediate future. It involves upfront grant assistance of up to 20% of the project cost for state or central level PPP projects that are implemented by a private sector developer who is selected through competitive bidding. An Empowered Committee has been set up for quick processing of cases.

Facilitating Public-Private Partnership. GOI has established India Infrastructure Finance Company Limited (IIFCL) as a wholly government-owned company to provide long-term finance to infrastructure projects, either directly or through refinancing. The IIFCL caters to the growing financing gap in long-term financing of infrastructure projects in the public, private, and PPP sectors. Any government project awarded to a private sector company for development, financing, and construction through PPP will have overriding priority under the scheme. GOI is working on a number of initiatives to assist and encourage capacity-building at the state and central levels. It is identifying the capacity-building needs of state governments and providing assistance for the creation of state-level PPP cells such as a nodal agency, streamlining the PPP approval process, developing PPP toolkits, model concession agreements (MCAs), bidding documents, and project preparation manuals. GOI is also building a central database and website on PPPs to disseminate updated information to the states and the private sector. Arrangements are being finalized under which, state governments would be able to avail themselves of consultancy support for developing PPP projects. Institutions like the ADB have begun supporting the capacity-building process through these workshops and proposed technical assistance projects.

Status of PPPs and States' perspectives. Eighty-six PPPs have been awarded in India so far, totaling about Rs 340 billion, in twelve states and three central agencies. Roads and port sectors have dominated in the number and size of PPPs. As of October 2006, twelve proposals were given in-principle approval under VGF. State governments have identified a whole range of sectors for PPPs, including roads and highways, ports (air, sea, and container), telecommunication, water supply, waste management, tourism, power, industrial infrastructure, township development, leisure, and health. States have also identified potential PPP projects that could be developed over the next few years. Many of the projects are already in the bidding stage using both memorandum of understanding (MOU) and competitive bidding procedures. Not many of these projects would require VGF funding. No clear link between institutional structure and success of a PPP has become apparent. State/Union Territory (UT) governments have indicated marked differences in the process of PPP development, including variations in existence of infrastructure legislation and policies, institutional arrangements for identifying and approving PPPs, project development funds and companies, financial structuring, and procurement procedures.

Requirements of Central Assistance. The states highlighted a number of areas where guidance, assistance, and technical support are required from GOI. These areas are: VGF(viability gap funding); quicker approval procedures; relaxation of the project details currently required for an in-principle approval; inclusion of projects awarded through the Special Purpose Vehicle (SPV) route and not competitive bidding, like railways; inclusion of rural sector projects and unfinished projects; inclusion of land costs under VGF financing, capacity-building, setting up PPP cells at the state level; access to project development resources; advisory support on infrastructure legislation and regulatory frameworks and detailed PPP policies; model PPP execution cycle; contract monitoring and time scheduling; guidelines on public sector comparator (PSC) and its comparison with the private sector

predictor; information on potential sources of long-term debt; and formalization of state PPP plans. The states have also called for streamlining of the statutory clearances on environment, defense, airport authority, land acquisition, etc.

Private Sector Perspectives. The private sector recognizes the enormous business opportunity of PPPs in India and has welcomed the Government of India's PPP initiatives. The private sector has urged the government to publicize the size of the business opportunity for PPPs in India to the private sector, which is estimated to be much more than has been previously thought. Given the enormous investment requirements in infrastructure development, the need for a sustainable pipeline of PPP projects has become paramount. The private sector remains eager to see more substantive reforms, enabling changes by government in the policy, regulatory provisions, and procurement procedures for PPPs.

Improvements in India's enabling environment. The private sector has called for changes in India's enabling environment and suggested measures to foster efficiency and transparency in the bidding process, ensure sanctity of contracts, encourage competition, promote market-driven tariffs, and separate regulatory and adjudication authorities. It has called for developing appropriate legislative framework for PPPs, clarification of entry conditions, suitable contractual structures, and clarification of incentives and concessions.

Standardized procurement procedures. Given the variations in the formats, bidding procedures, agreements, and overall execution of PPPs among the various states and agencies, the private sector has highlighted the need for standardized prequalification and bidding procedures and guidelines for ensuring efficiency, predictability, and ease of approval process.

Transparency. The need for maintaining transparency in the entire PPP project cycle and stakeholder interactions has been noted as a key factor in determining the success of PPPs. The private sector has urged the central and state governments and other public sector project sponsors to be cautious of the "selection by nomination"[20] procedure, which is not the same as transparently awarded PPP contracts.

Project development and structuring facility. A major impediment to successful commercialization of projects in India has been the absence of rigorous project development. Many of the projects put out for bidding by GOI have been inadequately structured and unsuitable for a PPP. A project development facility (PDF) that provides project sponsors, the resources to procure consultancy, and expert services for conducting pre-feasibility studies and assessments is required.

Public sector capacity to successfully execute PPPs. The private sector has highlighted its concerns about the absence of a robust pipeline of bankable PPP projects. This is attributed to insufficient capacity of the PPP-sponsoring public entities to identify and implement deals and execute PPPs. Capacity deficit is seen as the crucial bottleneck in achieving a steady flow of successfully negotiated PPP deals.

Public sector reforms, with or without PPPs. The infrastructure sector suffers from supply-side constraints. The PPP experience in various states has shown that procedures and processes have been extremely dilatory. The infrastructure sector needs to urgently implement public sector reforms to address supply-side constraints. Changes in delivery mechanisms, processes, procedures, and institutional structures need to be tailored towards client-focused outcomes and results. Land acquisition and environmental clearances are best obtained by governments. Social and environmental clearances are also best obtained

[20] In selection by nomination an expert panel or committee that is set up directly awards the contract to a person/party and the process is not transparent.

by government and not by the private partner. Several projects have stalled with huge time and cost overruns due to delays in land acquisition and transfer of land possession to the private sector. The private sector could deliver much faster if these clearances were handled by the project sponsor. Building in environmental and social dimensions of PPPs needs to be made part of the project development cycle.

Genuine and mutually rewarding partnerships. PPPs represent partnerships in action with huge stakes for both the public sector and private sector agencies to succeed collectively. It is important that the public and private sector work together, keeping the project and outcomes in focus rather than maximizing their own interests, and collaborating for mutually enduring value. PPPs are a new way of doing business and are not about command and control. Ultimately, the project partners need to remember that PPPs are not about finance, but about improving the quality and efficiency of public services.

6.1. Public-private Partnerships in Pakistan and Sri Lanka

The concept of PPPs in other countries of South Asia, such as Pakistan, Bangladesh, Sri Lanka, and Nepal, is not as well established as it is in India. Though many PPP projects in infrastructure have been implemented in these countries, the total number of projects and total investment in these projects has been negligible. In Pakistan, PPPs were non-existent up until the last two or three years. A few instances of BOT-type PPPs have been found in telecommunication, power generation, and the setting up of an oil terminal at Karachi port by the private sector. No projects have emerged for private participation in water supply and sanitation although there have been attempts to have private sector involvement in solid waste management. The overall lack of investment in infrastructure through PPPs in Pakistan is attributable to the government's lack of experience and capacity in commissioning and executing PPPs in infrastructure. There is also a lack of resources and packaging projects that could be successfully offered for financing.

In contrast to Pakistan, the experience of Sri Lanka with PPPs has been fairly good. Sri Lanka in recent years has been spending 3.5% of GDP on infrastructure development. The government of Sri Lanka set up the Bureau of Infrastructure Investment with enough funds for private investors to borrow. Success stories include the Colombo port, Sri Lankan Airlines, and telecommunications projects. However, these were not BOT or BOO, though they did involve PPP via divestiture of shares below 50% to the private sector. Sri Lanka has taken the help of the Indian government and emulated in its own country the success of the National Highway PPP project in India. The problem in Sri Lanka is not the lack of private finances for infrastructure projects but managing the transition for private sector involvement.

6.2. Global lessons for India

Though PPPs are a relatively new approach to procurement, lessons may be drawn from the experiences of developed and developing countries on the conditions for successful PPPs. As a relatively late entrant into the PPP development process, India can learn and benefit from the lessons and experiences of countries that have established PPP programs, such as Mexico, Chile, the United States, and the Philippines. These lessons are:

1. **Detailed PPP policy and planning.** This is to bolster the confidence and attract the participation of private investors and commercial lenders. Governments need to develop a policy on unsolicited proposals from the private sector. PPPs can succeed only if they are structured and planned in detail, and are managed by expert teams. Governments also need to use technical and financial advisors where needed, to match the advantages of the private sector, particularly in large-scale programs. Project development needs to be done by government, which needs to invest in development by creating dedicated funds.

2. **Proper allocation of risks.** Effective PPP models involve sensible division of roles and fair sharing of responsibilities, costs, and risks between the public and private sectors. Optimal, not maximum, assignment of risk is the principle that needs to be adopted.
3. **Provide adequate protection for lenders**. Public private partnerships should be designed in such a way so as to provide adequate protection to debt service against non-commercial risks related to force major regulatory changes, contract termination, etc. Avoiding renegotiations and midway changes to save costs and delays will also help secure lenders. A concession agreement should be structured in such a manner as to cover all possible causes of later adjustments, leaving minimum room for renegotiations. A key lesson learned from international experience is that governments often become over-enthusiastic to procure private sector participation by offering excessively concessional terms to the project company. This needs to be avoided.
4. **Development of public sector capacity**. Public sector capacity to prioritize, plan, appraise, structure, bid, and financially close PPPs remains the top-most challenge to the mainstreaming of PPPs at the state and central levels.
5. **Full and clear support by government**. Support for the PPP program and for specific PPP projects has to come from the highest political level of government. Strong political will is essential in overcoming resistance and needs to be seen as a clear sign of the government's intention to meet its contractual commitments.
6. **Proactive public communication and stakeholder management.** Many PPPs have failed due to strong opposition from civil society, local media, and other stakeholders. Feedback and consultations with citizens, labor unions, relevant government agencies, private investors, civil society organizations, and media will ensure public support, client focus, and improved coordination of the project.
7. **Role of multilateral agencies.** Multilateral agencies have welcomed the recent steps taken by GOI with respect to VGF and IIFCL. Agencies like ADB and World Bank could assist GOI in promoting PPPs across sectors and regions of India, through a range of financing, advisory and technical assistance (TA) measures. Most importantly, these agencies would be able to assist GOI in tailoring PPP solutions to specific demands of the individual states, sectors, and projects.
8. **Support capacity-building**. State presentations have highlighted the need for central assistance in capacity-building and have underlined this as critical in the long-term success of PPPs at the state level. In response to a request from the DEA and based on the feedback from a workshop series, ADB has agreed to extend TA to governments in order to mainstream PPPs at the central and state levels via capacity-building support, including assistance in the establishment of PPP cells at state levels.
9. **Potential financing options for PPPs**. ADB has re-engineered and operationalized new ways of doing business to provide more client-oriented services for state and central level infrastructure development initiatives. ADB may also consider if necessary, extending loans (multi-tranche financing facility, local currency loan) to qualified projects in several forms. These forms include: (i) public sector loans to states/municipalities/executing agencies for financing counter-grants/equity support, land, or engineering design; (ii) public sector loans to IIFCL (financial intermediary loan) which would, in turn, provide funds to project companies; (iii) private sector loans or equity investments by the private sector operation arm of the ADB to project companies; and, (iv) provision of guarantee to commercial lenders.

7. CONCLUSION AND POLICY IMPLICATIONS

Until the early 1990s, governments basically monopolized the infrastructure sectors in the South Asian region. Thus governments had a two-fold role—they were policy makers and regulators while they simultaneously owned the companies that provided infrastructure services. Governments were responsible for guaranteeing an adequate infrastructure for the population but also had to ensure that providers had sufficient resources to invest in expanding their services. However, the weak financial situation of most infrastructure sectors and an inadequate access to services showed that governments were not able to adequately fulfill these roles.

From the early to mid-1990s, countries in the South Asian region saw a wave of initiatives aimed at attracting private investment in their infrastructure sectors. The perception was that if the enormous investment needs of the countries were to be met, private foreign capital would have to be attracted. Soon it became apparent that such investments would not be forthcoming solely on the basis of policy statements. It became apparent that private investors were concerned about the conflicts arising from the multiple roles played by governments in the region. As a result, governments agreed to establish independent regulatory commissions in key infrastructure sectors. Governments hoped that this measure would also reduce the perceived political risk of investing in infrastructure sectors.

Individual South Asian countries have focused their reform efforts on different sectors. For example, in Sri Lanka a reform of the telecommunications sector was given priority. India has embarked on major reform programs in both electricity and telecommunications and reform proposals for petroleum and natural gas are underway. Bangladesh is proposing a single regulatory structure for electricity and natural gas. In all these countries, the ultimate objective is to improve efficiency in these sectors and attract private investments to develop infrastructure.

A close examination of private sector initiatives and PPPs shows the following constraints for PPPs in South Asia, specifically in countries with large economies, such as India:

- There is a weakness in government enabling policies and regulatory framework. Substantial work needs to be done to make sector policies and regulations PPP-friendly. In an economy like India’s, for instance, a large number of these projects are in the states and without the active participation of the states it would not be possible to achieve satisfactory results.

- The market presently does not have adequate instruments and capacity to meet long-term equity and debt financing needed by infrastructure projects.

- There is also a lack of credible, bankable infrastructure projects, which could be offered for financing to the private sector. Some initiatives have been taken both at the central as well as the state level to develop PPP projects. These tend to be isolated cases and have demonstrated a marked lack of consistency.

- There is also a lack of capacity in public institutions and officials to manage the PPP process. As these projects involve long term contracts covering the life cycle of the infrastructure asset being created, it is necessary to manage this process to maximize returns to all shareholders.

Policy suggestions

Build consensus for PPPs. There is little consensus among stakeholders on the benefits of involving the private sector in infrastructure development—especially in power and water utilities—in part due to ideological opposition and limited experience with private participation. Moving ahead successfully with PPP projects in the medium-term will require continued efforts to build awareness of the positive experiences of PPPs, hold consultations with policy-makers and other key stakeholders on the range of options for PPPs, and address stakeholders' concerns at the beginning of the planning and design stage.

Move toward cost recovery. Prices for infrastructure services in South Asia generally cover only a small share of the costs. Public and political opposition to involving the private sector often rests on concerns about price increases and exclusion of the poor. To be politically acceptable, a move toward cost recovery is likely to be gradual and must be accompanied by efforts to reduce inefficiency. In addition, the design of PPP projects should include innovate ways to deliver subsidies to the poor.[21]

Establish PPP professional units. Countries involved in PPPs on a large scale need to set up dedicated, cross-sectoral professional units to support project implementation, with responsibilities ranging from disseminating information and preparing guidelines to designing and implementing transactions. These units can guide and complement the efforts of line ministries and provincial governments to develop frameworks for PPPs, methodologies for evaluating PPP options and associated fiscal costs, standard contracts, guidance on managing the bid process, and monitoring and evaluation tools.

Ease financing constraints. Financing infrastructure projects is a challenge in South Asian countries, where financial markets are shallow and there are limited options for financing long term projects. To ease financing constraints, priorities should include: developing longer-term bond markets; developing investment policies and regulatory guidelines that encourage banks, insurance companies, pensions and mutual finds, and other financial institutions to help finance infrastructure projects; and, encouraging the use of innovative financing instruments to mitigate lender's risks. To help close the funding gap, the governments of Bangladesh, India, and Pakistan are establishing facilities to provide long term finance for infrastructure projects.

The opportunities for private investment in infrastructure projects are immense. As the reach of PPPs increases across sectors, the capacity of the private sector to manage these projects over their entire life cycles of two to thirty years will also have to be enhanced. As governments move forward with PPP programs, the factor most critical to success will be their commitment to minimizing the constraints to private participation.

[21] The policy implications are in part drawn from the Gridlines, Note No. 6, May 2006 (Public-Private Infrastructure advisory facility) of the World Bank titled, "Lifting constraints to Public-Private Partnerships in South Asia," by Bhavna Bhatia and Neeraj Gupta.

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